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HEWLETT-PACKARD COMPANY
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PATENT APPLICATION

ATTORNEY DOCKET NO. 200208787-1

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Eric T. MARTIN et al.

Confirmation No.: 6308

Application No.: 10/782,593

Examiner: Thomas, Brandi N.

Filing Date: 02/18/2004

Group Art Unit: 2873

Title: **METHOD AND APPARATUS FOR CONTROLLING A GAP BETWEEN CONDUCTORS IN A PLURALITY OF ELECTRO-MECHANICAL DEVICES**

Mail Stop Appeal Brief-Patents
Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF APPEAL BRIEF

Transmitted herewith is the Appeal Brief in this application with respect to the Notice of Appeal filed on May 2, 2008.

- ☒ The fee for filing this Appeal Brief is \$510.00 (37 CFR 41.20).
☐ No Additional Fee Required.

(complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

- ☐ (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d)) for the total number of months checked below:

☐ 1st Month
\$120

☐ 2nd Month
\$460

☐ 3rd Month
\$1050

☐ 4th Month
\$1640

- ☐ The extension fee has already been filed in this application.

- ☒ (b) Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

Please charge to Deposit Account 08-2025 the sum of \$ 510. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees.

Respectfully submitted,

Eric T. MARTIN et al.

By


William T. Ellis

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Atty. Dkt. No. 200208787-1

***IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES***

Applicant: Eric MARTIN et al.
Title: METHOD AND APPARATUS FOR CONTROLLING A GAP BETWEEN
CONDUCTORS IN A PLURALITY OF ELECTRO-MECHANICAL DEVICES
Appl. No.: 10/782,593
Filing Date: 02/18/2008
Examiner: Brandi N. Thomas
Art Unit: 2873
Confirmation Number: 6308

BRIEF ON APPEAL

Mail Stop Appeal Brief - Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Under the provisions of 37 C.F.R. § 41.37, this Appeal Brief is being filed together with a check in the amount of \$510.00 covering the 37 C.F.R. 41.20(b)(2) appeal fee. If this fee is deemed to be insufficient, authorization is hereby given to charge any deficiency (or credit any balance) to the undersigned deposit account 08-2025.

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REAL PARTY IN INTEREST

The real party in interest is Hewlett-Packard Development Company L.P., Houston,
TX.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences known to Appellants, the Appellants' legal representative, or assignee which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

STATUS OF CLAIMS

The present appeal is directed to claims 13-19 and 34 which are the claims under consideration. A copy of pending claims 13-19 and 34 is attached herein in the Claims Appendix.

Claims 1-12 and 20-33 are cancelled. Claims 13-19 and 34 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Publication No. 2004/0218341 (“Martin”).

STATUS OF AMENDMENTS

Claims 1-34 were initially pending in the application filed on February 18, 2004.

Claims 1-12 and 20-33 were withdrawn in a Response to Restriction Requirement filed on June 21, 2007.

Claims 1-12 and 20-33 were cancelled and claims 13-16, 18 and 34 were amended in an Amendment and Reply filed October 10, 2007.

This Appeal Brief is being filed within the statutory two month period after filing of the Notice of Appeal on May 2, 2008.

SUMMARY OF CLAIMED SUBJECT MATTER

Claims 13 and 34 are independent claims.

Independent claim 13 is directed to a method of controlling a gap between at least one fixed plate and an electrostatically movable plate in a MEMs device. *See* page 6, lines 19-32 and Fig. 7. Page 3, lines 6-12, page 4, lines 1-9, page 5, lines 3-16, page 6, lines 23-25 and Fig. 7 disclose time modulating a control signal to a controlled current output that is variable voltage compliant to represent a desired gap between the fixed plate and the electrostatically movable plate. Page 6, lines 9-14, page 6, lines 25-27 and Fig. 7 discloses selectively routing a charge which is a function of the controlled current output and the modulated time to array elements each including control circuitry and one of the plurality of electro-mechanical devices. Page 5, line 29 to page 6, line 8, page 6, lines 28-30 and Fig. 7 discloses displacing the electrostatically movable plate in response to the controlled current output.

Independent claim 34 is directed to an apparatus for controlling a gap between at least one fixed plate and an electrostatically movable plate in a MEMs device. Fig. 9. Page 3, lines 6-12, page 4, lines 1-9, page 5, lines 3-16 and page 6, lines 23-25 discloses means for selectively setting a reference current onto a controlled current output that is variable voltage compliant, the controlled current output coupled to the MEMs device on the basis of the time modulated control signal. Page 5, lines 3-16, page 6, lines 9-14 and page 6, lines 25-27 discloses means for time modulating a control signal to represent a desired gap between the fixed plate and the electrostatically movable plate by a charge which is a function of the controlled current output and the modulated time. Page 5, line 29 to page 6, line 8 and page 6, lines 28-30 discloses means for displacing the electrostatically movable plate in response to the controlled current output.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Accordingly, the issue on appeal is whether the examiner erred in:

finally rejecting claims 13-19 and 34 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Publication No. 2004/0218341 (“Martin”).

ARGUMENT

Martin fails to disclose each and every limitation of independent claims 13 and 34. In support, Appellant relies on M.P.E.P. § 2131, entitled “Anticipation – Application of 35 U.S.C. § 102(a), (b) and (e)” which states, “a claim is anticipated only if each and every element set forth in the claim is found, either expressly or inherently described, in a single prior art reference.”

Independent claim 13 is directed to a method of controlling a gap between at least one fixed plate and an electrostatically movable plate in a MEMs device. Independent claim 34 is directed to an apparatus for controlling a gap between at least one fixed plate and an electrostatically movable plate in a MEMs device. For example, independent claim 13 recites time modulating a control signal to a controlled current output that is variable voltage compliant to represent a desired gap between the fixed plate and the electrostatically movable plate; selectively routing a charge which is a function of the controlled current output and the modulated time to array elements each including control circuitry and one of the plurality of electro-mechanical devices; and displacing the electrostatically movable plate in response to the controlled current output. Independent claim 34 contains similar limitations.

In addition to other steps, independent claim 13 recites “time modulating a control signal to a controlled current output that is variable voltage compliant to represent a desired gap between the fixed plate and the electrostatically movable plate.” Similarly, independent claim 34 recites a “means for selectively setting a reference current onto a controlled current output that is variable voltage compliant, the controlled current output coupled to the MEMs device on the basis of the time modulated control signal.” Accordingly, by modulating the current source/control signal the claimed method and apparatus can achieve ideal charge control on a MEMs device which in turn allows for more precise control of the MEMS device.

In contrast, Appellants respectfully submit that Martin does not disclose, teach or suggest each and every element of the claims. Specifically, Martin does not disclose, teach or suggest “time modulating a control signal to a controlled current output that is variable voltage compliant” as claimed in claim 13 or a “setting a reference current onto a controlled

current output that is variable voltage compliant, the controlled current output coupled to the MEMs device on the basis of the time modulated control signal” as claimed in claim 34 for at least the reasons set forth below.

Martin discloses that a “[c]harge control circuit 32 is configured to control micro-electromechanical device 34 by applying a reference voltage having a selected voltage level provided by variable power supply 36 across first and second conductive plates 42 and 44 for a predetermined duration to thereby cause a stored charge having a desired magnitude to accumulate on variable capacitor 46.” See ¶ 14. Fig. 3 of Martin discloses a reference voltage V_{ref} and a control switch 91 to control the gap of MEMs 34 by controlling the time the V_{ref} voltage is applied to plate 42. Further, Martin discloses that “[b]y application of a precision reference voltage across first and second conductive plates 42 and 44, the charge stored on variable capacitor 46 and thus, variable gap 48, can be controlled over a wide gap distance range.”

The Final Office Action and Advisory Action assert that paragraph 14 discloses “time modulating a control signal to a controlled current output that is variable voltage compliant” as claimed in claim 13 or a “setting a reference current onto a controlled current output that is variable voltage compliant, the controlled current output coupled to the MEMs device on the basis of the time modulated control signal” as claimed in claim 34. Appellant(s) respectfully disagree.

Paragraph 14 of Martin does not disclose each and every element of claims 13 and 34. Claim 13 recites in part “time modulating a control signal to a controlled current output that is variable voltage compliant.” Claim 34 recites in part “setting a reference current onto a controlled current output that is variable voltage compliant, the controlled current output coupled to the MEMs device on the basis of the time modulated control signal.” As stated above, by modulating the current source/control signal the claimed method and apparatus can achieve ideal charge control on a MEMs device which in turn allows for more precise control of the MEMS device. In contrast, applying a reference voltage at a selected voltage level across conductive plates for a predetermined amount of time as disclosed in Martin is not “time modulating a control signal to a controlled current output that is variable voltage

compliant” as claimed in claim 13 or “setting a reference current onto a controlled current output that is variable voltage compliant, the controlled current output coupled to the MEMs device on the basis of the time modulated control signal” as claimed in claim 34.

M.P.E.P. § 2131 states that “[t]he identical invention must be shown in as complete detail as is contained in the...claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989). The elements must be arranged as required by the claim. *See In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990). Here, Martin fails to disclose each and every limitation in as complete detail as is contained in independent claims 13 and 34.

Accordingly, Appellants respectfully request that the rejection be withdrawn and independent claims 13 and 34 be allowed. Further, claims 14-19 depend from independent claim 13 and should also be allowed for the reasons set forth above without regard to further patentable limitations cited therein.

CONCLUSION

In view of above, appellants respectfully solicit the Honorable Board of Patent Appeals and Interferences to reverse the rejections of the pending claims and pass this application on to allowance.

Respectfully submitted,

Date:

By Wm K.R. *Reg. No. 59,314*

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CLAIMS APPENDIX

13. A method of controlling a gap between at least one fixed plate and an electrostatically movable plate in a MEMs device, comprising:

time modulating a control signal to a controlled current output that is variable voltage compliant to represent a desired gap between the fixed plate and the electrostatically movable plate;

selectively routing a charge which is a function of the controlled current output and the modulated time to array elements each including control circuitry and one of the plurality of electro-mechanical devices; and

displacing the electrostatically movable plate in response to the controlled current output.

14. The method as defined in claim 13, wherein selectively routing a charge comprises selectively mirroring a reference current onto the controlled current output coupled to the MEMs device on the basis of the time modulated control signal.

15. The method of claim 14,

wherein selectively mirroring the reference current selectively mirrors the reference current onto a plurality of controlled current outputs, each of the plurality of controlled current outputs being coupled to one of a plurality of MEMs devices, and

wherein displacing the electrostatically movable plate displaces an electrostatically movable plate in each of the plurality of MEMs devices in response to a corresponding controlled current output.

16. The method of claim 14, further comprising: generating the reference current.

17. The method of claim 16, further comprising:

adjusting the reference current to represent the desired gap between the fixed plate and the electrostatically movable plate.

18. The method of claim 14, wherein selectively mirroring the reference current onto the controlled current output generates the variable voltage compliant controlled current output.

19. The method of claim 13, further comprising selectively setting a predetermined charge in the MEMs device before displacing the electrostatically movable plate in response to the controlled current output.

34. An apparatus for controlling a gap between at least one fixed plate and an electrostatically movable plate in a MEMs device, comprising:

means for selectively setting a reference current onto a controlled current output that is variable voltage compliant, the controlled current output coupled to the MEMs device on the basis of the time modulated control signal;

means for time modulating a control signal to represent a desired gap between the fixed plate and the electrostatically movable plate by a charge which is a function of the controlled current output and the modulated time; and

means for displacing the electrostatically movable plate in response to the controlled current output.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.